

Conversion Factors and Tables

Length

Unit of measure	Symbol
millimeter	mm
centimeter	cm
meter	m
kilometer	km
inch	in
foot	ft
mile	mi

Conversion table

mm	cm	m	km	in	ft	mi
1	0.1	0.001	---	0.0394	0.003	---
10	1	0.01	---	0.394	0.033	---
1000	100	1	0.001	39.37	3.281	---
---	---	1000	1	---	3,281	0.621
25.4	2.54	0.0254	---	1	0.083	---
304.8	30.48	0.305	---	12	1	---
---	---	1609	1.609	---	5280	1

Area

Unit of measure	Symbol
square meter	m ²
hectare	ha
square kilometer	km ²
square foot	ft ²
acre	acre
square mile	mi ²

Conversion table

m ²	ha	km ²	ft ²	acre	mi ²
1	---	---	10.76	---	---
10,000	1	0.01	107,640	2.47	0.00386
1x10 ⁶	100	1	---	247	0.386
0.093	---	---	1	---	---
4,049	0.405	---	43,560	1	0.00156
---	259	2.59	---	640	1

Volume

Unit of measure	Symbol
cubic kilometer	km ³
cubic meter	m ³
liter	L
million U.S. gallons	Mgal
acre-foot	acre-ft
cubic foot	ft ³
gallon	gal

Conversion table

km ³	m ³	L	Mgal	acre-ft	ft ³	gal
1	1x10 ⁹	---	---	811,000	---	---
---	1	1000	---	---	35.3	264
---	0.001	1	---	---	0.0353	0.264
---	---	---	1	3.07	134,000	1x10 ⁶
---	1,233	---	0.3259	1	43,560	325,848
---	0.0283	28.3	---	---	1	7.48
---	---	3.785	---	---	0.134	1

Flow Rate

Unit of measure	Symbol
cubic kilometers/year	km ³ /yr
cubic meters/second	m ³ /s (m ³ /sec)
liters/second	L/s (L/sec)
million U.S. gallons/day	mgd (Mgal/d)
U.S. gallons/minute	gpm (gal/min)
cubic feet/second	cfs (ft ³ /s)
acre-feet/day	acre-ft/day

Conversion table

km ³ /yr	m ³ /s	L/s	mgd	gpm	cfs	acre-ft/day
1	31.7	—	723	—	1,119	2,220
0.0316	1	1000	22.8	15,800	35.3	70.1
—	0.001	1	0.0228	15.8	0.0353	(0.070)
—	0.044	43.8	1	694	1.547	3.07
—	—	0.063	—	1	0.0022	0.0044
—	0.0283	28.3	0.647	449	1	1.985
—	—	14.26	0.326	226.3	0.504	1

Weights

Unit of measure	Symbol
ton (short)	T
pound	lb
kilogram	kg
gram	g
milligram	mg
microgram	μg

Conversion table

T	lb	kg	g	mg	μg
1	2000	907	—	—	—
	1	0.454	453.592	—	—
	2.205	1	1000	1x10 ⁶	—
		0.001	1	1000	1x10 ⁶
			0.001	1	1000
				0.001	1

Note: 1 short ton = 2,000 lb
 1 long ton = 2,240 lb
 1 metric ton = 1,000,000 g = 1,000 kg = 2,205 lb

Miscellaneous

1 acre-inch	= 27,154 gallons
1 horsepower	= 0.746 kilowatts
1 horsepower	= 550 foot-pounds per second
degrees C	= 5/9 (F° – 32°)
degrees F	= 9/5 (C° + 32°)
1 gram	= 15.43 grains
1 ppm	= 8.345 pounds per million gallons of water = 0.2268 pounds per acre-inch
1 U.S. gallon	= 8.345 pounds

parts per million (ppm)—1 ppm is 1 part by weight in 1 million parts by weight.

milligrams per liter (mg/L)—1 mg/L is 1 milligram (weight) in 1 million parts (volume), i.e., 1 liter. Therefore, ppm = mg/L when a solution has the same specific gravity as water. Generally, substances in solution up to concentrations of about 7,000 mg/L do not materially change the specific gravity of water. To that limit ppm and mg/L are numerically interchangeable. A 1-percent solution has a concentration of 10,000 ppm, which equals 1 gm in 100 grams of water.

Electrical conductivity—Electrical conductance is expressed in mhos (reciprocal ohms); electrical conductivity (EC) is expressed in mhos/cm. 1 mhos/cm = 1,000 millimhos/cm (mmhos/cm) = 1,000,000 micromhos per centimeter (umhos/cm). 1.0 mmho/cm equals a concentration of approximately 640 ppm dissolved salts.